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At a Leisurely Pace, Clinton Is Filling the R&D Posts

Five months after Bill Clinton's election, the federal research enterprise appears to be rolling along in normal fashion despite numerous senior vacancies and holdovers of uncertain duration from the Bush Administration.

From NASA to the National Science Foundation, from Agriculture to Defense, what is indeed remarkable is how little has changed, despite Clinton's declarations of a new era of intense technological collaboration between government and industry.

The two are indeed increasingly intimate, but mainly on the basis of anxieties, laws, and goals that date back a decade or more. While President Bush remained ideologically muddled about the government's proper role in industrial technology, his Administration slowly implemented, though often erratically, the industrial R&D programs that now are enthusiastically espoused by Clinton. Many of them, in fact, such as the industrial collaboration programs of the National Institute of Standards and Technology (NIST), were origi-

nal from the NSF budget proposed by Bush for the present fiscal year. In Clinton's budget for next year, fiscal 1994, NSF would receive another substantial increase—8 percent, assuming the restoration of funds for this year.

NASA, the intractable problem child of government R&D, is going through a brutal reorientation of programs and policies as the Clinton Administration candidly acknowledges the folly and extravagance of the Space Station, and aims to slash its size and costs. The impresario in charge of this ordeal is a holdover from the Bush Administration, Daniel Goldin, who initiated the recreation of NASA months before Bill Clinton's election.

The durability of Goldin's tenure has been left deliberately vague, which means that he'll be retained for as long

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nated by Democratic legislators whose involvement with these issues predated the Reagan Administration.

Though the staff charts are riddled with vacancies and holdovers, the system seems to be running quite well on habit, momentum, and values that endure from one presidency to the next.

Nonetheless, in the R&D agencies, as elsewhere, the dawdling pace of appointments has passed the point of understanding. FBI checks, reticence arising from stiffer ethics regulations for post-government employment, and relatively skimpy pay for high-performing executives are customarily offered as explanations for the languid staffing of this Administration. Then, too, the embarrassment of the Zoe Baird episode has inspired super-caution among the White House's recruiters.

Even so, Washington oldtimers are looking on with increasing wonder, though the lesson to be drawn may be that the federal research establishment is equipped with an inertial guidance system that does what needs to be done, with minimal human intervention.

Fears that basic science would be overshadowed by Clinton's technological priorities have not been fulfilled. In one of the first budget moves of the new Administration, Congress was asked to restore the \$207 million that it clipped

In Brief

Hardpressed for cash during the Reagan and Bush Administrations, the White House Science Office relied heavily on borrowed staff from federal agencies and refrained from contracting for outside studies. It's time to change, Director John Gibbons told a House Appropriations hearing last week, at which he asked for \$5.1 million for next year, an increase of nearly \$1 million. Gibbons said he's aiming for a "more stable staff" and wants to contract for "short-term, highly technical information needs," as he did while Director of the Congressional Office of Technology Assessment.

The National Science Foundation plans to start moving in June to a newly constructed building in Ballston, Va., about 20 minutes by subway from its present site in downtown Washington. The move, long resisted by the NSF management, and finally decreed by Congress and approved by the White House, is expected to take several months.

Kathleen Sullivan, a NASA Mission Specialist currently working at the National Oceanic and Atmospheric Administration, has been nominated by President Clinton to be Chief Scientist of NOAA. Also nominated: Sharon Porter Robinson, now with the National Education Association, to be Assistant Secretary of Education for Educational Research and Improvement.

To get a copy of the Pentagon's plans for revamping the Defense Advanced Research Projects Agency into ARPA, which will serve both military and civilian goals, dial 1/800-DUALUSE.

... A Hiatus After Early Selection of Science Advisor

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as he delivers. In an interview with *Space News* (March 22-28), White House Science Adviser John Gibbons responded to a question about Goldin's uncertain status by saying, "I hired on at this job, and I go day by day. I serve at the pleasure of the President. The notion that Dan—and I don't think he has asked for it—should have something like a four-year contract is kind of silly."

The Food and Drug Administration, also undergoing a prolonged, major shakeup, has been left to another holdover from the Bush Administration, David Kessler. His tenure has not been specified, but in announcing that Kessler would stay on as FDA Commissioner, the Administration conveyed the impression of a durable appointment.

The pinnacle post for the research-related sector, White House Science Advisor, was filled early, with the announcement at Christmas time of the appointment of Gibbons, Director of the Congressional Office of Technology Assessment. The science establishment cheered.

Pre-inaugural selection of the Presidential Science Advisor has for many years been a heartfelt goal of the elders of science, who have long contended that the Advisor should be centrally involved in filling Washington's top R&D posts. Gibbons was on duty on day one of the new Administration and has been the key figure in recruiting for those posts. Nonetheless, the federal R&D bureaucracy is still riddled with vacancies and holdovers with unknown futures.

Vacancies, holdovers, and sparse staffing even prevail in Gibbons' own shop, the White House Office of Science and Technology Policy. When SGR phoned there the other day on a routine matter, Gibbons himself picked up the call, explaining that his secretary was delayed in traffic.

At the Department of Agriculture, the top research post, Assistant Secretary for Science and Education, has been vacant since January 20, when Duane Acker left.

Meanwhile, the two top R&D policy posts in the Department of Commerce, Under Secretary for Technology and Assistant Secretary for Technology Policy, have not yet been filled. (The most recent occupant of the latter post, Deborah Wince-Smith, has been appointed a Senior Fellow at the Council on Competitiveness.)

But, also at Commerce, in a move that caused considerable surprise, the White House last week appointed a new Director for NIST, Arati Prabhakar, Director of the Microelectronics Technology Office in the Defense Advanced Research Projects Agency. She will succeed John W. Lyons, who, like most of his predecessors, was appointed from within at the venerable agency, formerly the National Bureau of Standards. A spokesman there said that Lyons will probably return to research at NIST.

At the Department of Energy, another Bush appointee, William Happer, remains as Director of the Office of Energy Research, which funds basic research. However, there's been no public indication about whether he's to stay on.

Holdovers and vacancies are the order of the day at the Defense Department, where Secretary Les Aspin, fresh out of the hospital after a pacemaker implant, has been joined so far by only two Presidentially appointed colleagues: William Perry as Deputy Secretary and John Deutch as Under Secretary for Acquisition.

At the Department of Health and Human Services (HHS), Phil Lee, Director of the Institute for Health Policy Studies, UC San Francisco, is the President's choice for Assistant Secretary for Health—chief of the Public Health Service agencies. Lee, who inaugurated that post in the Carter Administration, has relocated to Washington and is working at the Department as a consultant. As of last week, the White House had still not sent his nomination to the Senate—a not unusual gap between the announcement of a nomination and completion of the paperwork that precedes a confirmation hearing.

Meanwhile, the thinly staffed White House Science Office is losing one of its senior members to Lee's office, Donald A. Henderson, former Dean of the Johns Hopkins School of Hygiene and Public Health, who will serve as HHS Deputy Assistant Secretary for Science, with responsibilities for the Administration's vaccination program for children.

The biomedical rumor mill says an announcement will soon be made of a new Director for the National Institutes of Health, to succeed Bernadine Healy, whose departure has been requested by the Administration. Healy says she'll be gone by June 30. Will a successor be on board by that date? Who knows?

And a search is in progress for a new Director for the National Science Foundation, to succeed Walter Massey, who is voluntarily leaving on April 4 for a vice presidency of the University of California. Pending an appointment, Senate confirmation, and the arrival of the new Director, Deputy Director Frederick M. Bernthal will head the Foundation on an acting basis. Many names are said to be in the mill.

The bureaucratic purists who are distressed by Clinton's torpid rate of appointments must confront two difficult questions: What's the hurry? What's the difference?—DSG

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Carnegie Science Commission Dissolves on Schedule

Defying the canons of institutional immortality, the Carnegie Commission on Science, Technology, and Government will soon expire as scheduled at conception. The end of this private but publicly focused operation comes after a mere five years in its assigned task—urging the federal and state governments and the scientific community to huddle closer for formulating public policies.

A creation of the philanthropic Carnegie Corporation of New York, the Commission is a testimonial to the political sophistication of the science establishment. With a lifespan that mainly coincided with the domestically indolent Bush Administration, the Commission resembled the scientific sector of a government in exile.

But it would be more exact to call it a philosophy in exile. Though Democratically flavored (Jimmy Carter and several who served his Administration were members or advisers), the Commission was situated in the big middle where Democrats, Republicans, and non-politicals regard close links between science and government as normal and desirable.

The Commission's brief but visible appearance on the science-policy scene is a tribute to the power of money, deft leadership, and shrewd name collecting. With an exception or two, the Commission didn't plow new ground toward its stated goal of closer ties between the scientific community and the executive, legislative, and judicial branches of the federal and state governments.

But, with its recognizable membership and attractively printed, widely distributed reports, the Commission caught the attention of Congress and the press, even when it was merely recycling ideas that have long been on the loose in Washington.

The Commission convened platoons of publicly visible scientific and political figures to attach their names to reports ranging from science in the kindergartens to science in the Congress. All in all, it issued 17 "formal" reports in the name of the Commission and six reports by consultants, with a combined total of over 300 recommendations. The common thread in the reports is a faith that science can improve public decisionmaking—if only politicians and bureaucrats will admit it to the policy arena and give it serious attention.

David Hamburg, President of the Carnegie Corporation, is said to have conceived the Commission and put it into operation, with a foreordained existence not to exceed five years. During its lifetime, the Commission expended nearly \$10 million and printed a total of about 200,000 copies of its various reports, distributed gratis to public officials nationwide, the press, and many others. Its judgments and recommendations never made a big splash in Washington, but at the intersection of science and politics it was a conspicuous presence.

The Commission was co-chaired by William T. Golden, a New York financier whose involvement with science-

policy issues dates back to White House service under Harry Truman, and Nobelist Joshua Lederberg, former President of Rockefeller University. The members included former MIT President Jerome Wiesner, former NSF Directors Richard Atkinson and Guy Stever, Norman Augustine of Martin Marietta, and others prominent in science, politics, and the linkage of the two. Advisory committees added to the heft of membership. Serving as Executive Director was David Z. Robinson, an alumnus of the White House science office in the Kennedy Administration and former Vice President and Treasurer of the Carnegie Corporation, to which he will return as a Senior Counselor to President Hamburg.

Efficacy in the advice business, solicited or, as with the Commission, volunteered, is difficult to assess, and must be viewed against the political backdrop of the time: the Bush Administration, which initially disdained the economic and social activism espoused by the Commission. After Chief of Staff John Sununu's departure from the White House, Bush and company cautiously moved in the direction of the industrial-aid policies advocated by the Commission. But, by and large, the Commission was an appeal to the future, rather than to the White House of the moment.

The Commission can claim one indisputable bull's eye—the establishment, upon its recommendation, of a science unit in the Federal Judicial Center, the research and education facility for the federal judiciary.

It was in the chorus of many individuals and organizations calling for the Pentagon to reorient the Defense Advanced Research Projects Agency (DARPA) toward joint civilian-military goals. Ignored by the Bush Administration, the formula has been embraced by the Clinton Administration, which has dropped the "D" and created ARPA. The Commission, along with the National Academy of Sciences and others, pushed and pleaded for early appointment of the President's Science Advisor—which also came to pass in the Clinton Administration.

Under John Brademas, President emeritus of NYU and former House Majority Whip, the Commission began prodding Congress three years ago to harmonize its fragmented committee jurisdictions for research-related agencies. As a first step, Brademas proposed the creation of a bipartisan Congressional Science and Technology Study Conference. But despite a good turnout at the beginning, interest has been difficult to sustain amid the many distractions on Capitol Hill. And with the current Congress, which has some 120 new members, preoccupied with the Clinton economic and health-reform programs, concern about revamping science jurisdictions is minimal.

On the eve of departure, the Commission has released its last reports (available as indicated below):

Science, Technology, and Government for a Changing World, a collection of essays by Lederberg, Golden, Brademas, Jimmy Carter, and others associated with the Commis-

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... New Carnegie Studies, Earlier Reports Available

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sion; and *Science and Technology in Judicial Decision Making: Creating Opportunities and Meeting Challenges*, a report by the Commission's Task Force on Judicial and Regulatory Decision Making, chaired by Helene L. Kaplan, a Washington attorney.

The Commission also submitted an *amicus* brief, "in support of neither party," in *Daubert v. Merrell Dow*, a case concerning criteria for scientific standards in judicial proceedings, on which the Supreme Court heard arguments on March 30.

The Commission's main office, in New York, will close at the end of June. The Washington outpost will linger on for a month or two.

The Commission's reports, all available without charge, can be ordered as follows:

Through June, from: Carnegie Commission on Science, Technology, and Government, 10 Waverly Place, New York, NY 10003; tel. 212/998-2150; fax 212/995-3181.

After July 1, order from: Carnegie Corporation, Publications, 437 Madison Ave., New York, NY 10022; tel. 212/371-3200; fax 212/754-4073.

Commission reports:

Science & Technology and the President

E3: Organizing for Environment, Energy, and the Economy in the Executive Branch of the US Government

New Thinking and American Defense Technology

Science, Technology, and Congress: Expert Advice and the Decision-Making Process

Technology and Economic Performance: Organizing the Executive Branch for a Stronger National Technology Base

In the National Interest: The Federal Government in the Reform of K-12 Math and Science Education

Science, Technology, and Congress: Analysis and Advice from the Congressional Support Agencies

Science and Technology in US International Affairs

Enabling the Future: Linking Science and Technology to Societal Goals

Partnerships for Global Development: The Clearing Horizon

Environmental Research and Development: Strengthening the Federal Infrastructure

A Science and Technology Agenda for the Nation: Recommendations for the President and Congress

Facing Toward Government: Nongovernmental Organizations and Scientific and Technical Advice

Consultant reports:

The Work of the Federal Courts in Resolving Science-Based Disputes: Suggested Agenda for Improvement

The United States as a Partner in Scientific and Technological Cooperation: Some Perspectives from Across the Atlantic

Procedural and Evidentiary Mechanisms for Dealing with Toxic Tort Litigation: A Critique and Proposal

Carnegie Commission on Science, Technology, and Government: Progress Report

The Budget Process and R&D

The United States and Development Assistance

Rep. George Brown on:

The Chant of "More Research"

From an address by Rep. George E. Brown Jr. (D-Calif.), Chairman of the House Science, Space, and Technology Committee, March 12, in Washington, to a meeting of Sigma Xi on "Science and Public Policy: Linking Users and Producers."

The science advice that Congress receives from non-advocacy scientific organizations typically advocates more research. For example, in National Academy of Sciences reports on controversial policy issues such as global change, wetlands, and biodiversity, the majority of recommendations are for more research. The question is not whether such recommendations are appropriate—of course they are—but whether they address the hard issues facing policy makers....

When "more research" is identified as a policy-making requirement (rather than a technical need), one implicitly argues that new results will ensure better policy decisions and a level of certainty—of clarity—that will help overcome political debate and inertia. I have tried to show that this argument is overrated....

I've suggested that the worthwhile pursuit of objectivity in science is not easily transferable to the policy process. This difficulty does not merely reflect the character of ignorant and self-serving politicians; it also reflects the intrinsic nature of the scientific method. The siren song of scientific objectivity can draw us onto the rocks of legislative inaction, by creating rhetorical gridlock, on the one hand, and by perpetuating the illusory expectation of better prediction through more research, on the other....

It is not clear that expertise in science implies wisdom in policy. The questionable assumption here seems to be that science is hard and requires credentials and years of practice, while policy is easy, and flows organically from scientific consensus. This is rarely the case.

Policy makers today are not faced with a shortage of information. What they often lack, however, is reliable new information that they can use. Science advice to Congress often falls on deaf ears because it is not user friendly. In a vain effort to be accurate, measured, unbiased, and comprehensive, science advice can also be irrelevant, impractical, untimely, and incomprehensible.

Increased Congressional demands for reports from the National Academy of Sciences and the Office of Technology Assessment often reflects not a quest for truth, but an appetite for ammunition....

Some may consider these observations to be "anti-scientific." In fact, I fear that unrealistic expectations about what science can deliver to society could ultimately create an anti-science backlash, and I am trying to avoid that unfortunate consequence....

Biological Survey Under Study at Interior Department

A rare event, the creation of an important federal research agency, may be in the making following the announcement last month of steps toward establishing a National Biological Survey in the Department of Interior—a life-sciences counterpart to the venerable US Geological Survey, also part of that Department. Interior Secretary Bruce Babbitt announced that planning of the new Survey will be led by Thomas Lovejoy, a pillar of the environmental movement, on leave from the Smithsonian Institution, where he is Assistant Secretary for External Affairs. Lovejoy will serve in the newly created post of Science Advisor to the Interior Secretary. Advice will also be provided by the National Academy of Sciences, also involved in the creation of the Geological Survey 114 years ago. Lovejoy discussed the new assignment March 24 at one of the monthly or so seminars for Washington scientists sponsored by The George Washington University Center for International Science and Technology Policy. Following are excerpts, transcribed and edited by SGR.

Certainly, from the point of view of biological diversity, and learning about it and protecting it, there is no greater leader in this new Administration than the Secretary of the Interior, Bruce Babbitt.

Bruce Babbitt first came to see me about four years ago. Tim Wirth [then Democratic Senator from Colorado] sent him over to the "Castle" [Smithsonian headquarters] to see me. And Bruce, who has an acute sense of history, came into my quaint office—all offices in the Smithsonian Castle are quaint—and he said, "This has to be the office that John Wesley Powell [explorer, conservationist, and Director of the US Geological Survey, 1880-94] retired to...." That is Bruce Babbitt's perspective that he has brought to the Department of Interior, and which he brings to the notion of creating a National Biological Survey.

He is completely aware of the history of how the Smithsonian and the National Academy together helped draw the different leaders in the field of geology into a single unitary program in the 1880's and start the US Geological Survey. And basically what happened about four-five weeks ago was that there was a meeting—which really wasn't supposed to deal with as big a topic as this—with Bruce Babbitt and [Presidential Science Advisor] Jack Gibbons, and Tim Wirth, and myself. And Bruce started to talk about the beginning of the US Geological Survey. Jack Gibbons had read exactly the same history on John Wesley Powell.... And suddenly there was very easy agreement amongst all present that there really was a need to try and think about how to do something similar for biology today....

I will be loaned by the Smithsonian Institution to be Science Advisor to Bruce Babbitt for, at least initially, a four-month period, which will begin on the 8th of April. And what Bruce is really after is to look at science, primarily the biological science, across the entire Department, and see

how it might be improved, and to pull some of that together into a unit called the National Biological Survey, the reporting arrangements of which, I believe, are still under discussion.

What's interesting about this is that it fits so logically with the problems of renewing the Endangered Species Act. It is a good piece of legislation. I don't think there's a lot that's wrong with it, except that it has to be used too often in the absence of the kind of collection of information that a National Biological Survey would do. Also, analysis, and then proactive conservation of biological diversity in its natural aggregations before it's under such stress that it's generating endangered species and creating what Secretary Babbitt refers to as "national train wrecks"....

The notion, as it stands at the moment, is to take certain elements of biological science that are in the various agencies of the Interior Department—Fish and Wildlife, Park Service, Bureau of Land Management, and a few others, and various odds and ends that exist there, and simply repackaging them into something called the National Biological Survey.

I think it's probably wrong for me tonight to suggest any particular element that's going to be in there, because I think that's still very much in flux. But we're talking about a package of substantial size to which Bruce Babbitt proposes to add the little free money that he expects to have in his '94 budget. And that is just the beginning. We really need to look seriously at all those elements and what they're doing.

Now I've heard a couple of presentations done internally on very short notice for the Secretary—two different possible combinations. And all I can say about it is this: that when you look at the science which has grown up in individual agencies over long periods of time, serving a particular focus in those agencies, and you then lay it out and look at it across the entire Department, clearly you wouldn't design it exactly the same way.

And my job, I guess, will be to look at a lot of that, worry about the questions of whether certain kinds of science are so important to the day-to-day mission of a particular agency that they should stay there; whereas others might come out and be reprogrammed to look in this more comprehensive and expansive way at the biology of our landscape. I don't even know yet the full array of the kinds of research that go on in the Interior Department. There's a lot of wildlife toxicology. That may turn out to be extraordinarily important, but I just simply don't know that yet.

All that has to go on and take into very active consideration that the Interior Department is not the only player in the biological-diversity science game, or in the biological-diversity conservation game. First of all, there are agencies like the National Science Foundation or NOAA [National Oceanic and Atmospheric Administration, in the Commerce Department], or whatever, which have serious ongoing programs dealing with biological diversity research. There

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Survey Will Focus on Species and Landscape Levels

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are all those universities involved in that kind of research, some of which have cooperative arrangements with the Interior Department. There are state agencies. Illinois has a biological survey. There are institutions, like the American Museum of Natural History, in New York, or the great botanical gardens of this country, all of which have a piece of the action. And then in terms of data bases, probably the single greatest data base is that which exists under the auspices of the Nature Conservancy, in the 49 individual state heritage programs.

So, somehow out of all this, this vision that Bruce Babbitt has has to result in a reasonably articulated, collaborative mosaic. It's going to be a neat trick just to do that. And that's just the beginning. If you're really going to do something about getting ahead of the generation of endangered species, and protecting biological diversity in its natural aggregations, at some point there's going to have to be some sort of working classification of ecosystems or bioregions or whatever term you want to come up with to describe the way organisms are aggregated in nature. And I can imagine that being an extremely fractious topic, because clearly there is no single obvious answer. At some point, a bunch of people are just going to have to hammer it out, and maybe be locked up with nothing but water until they come up with something that everybody can agree to work with....

Then you have to think about it in the overall international context, particularly the context of the developing nations, where biological diversity is incredibly superficially inventoried and surveyed at this point. We can't even tell you to within an order of magnitude how many species there are on this planet, and a lot of that uncertainty lies in the tropical countries....

One of the important aspects of all of that is still largely overlooked. And that is, what does that mean for the great institutions of systematic biology, almost all of which are in the industrialized nations. The British Museum of Natural History, the botanical collections in Leningrad, the Museum of Natural History in Paris, etc. There is a tremendous responsibility there, because that's where the type specimens for most described organisms are. Efforts to describe the newly discovered stuff in other parts of the world can only really be done with reference to those collections.

That's where a lot of the initial training of expertise to the increased number of people needed to do this exercise will have to take place. These are institutions which have largely been starved in recent years. Some of them are doing well. The stronger ones have come through it reasonably well. But even they are not what you would call super vibrant and feeling very well funded. There is a global responsibility that the nations with those institutions have which I don't think is recognized yet....

Question Period

Q. The public pronouncements on the Biological Survey

Bio Survey Causes Jitters

The Interior agencies directly relevant to the proposed National Biological Survey are predictably antsy about the possibility of being cannibalized. Though their budgets far exceed pin money, they have all been stretched by years of austerity. The biggest among them is the National Park Service, funded this year at close to \$1 billion. The others, in the \$500-\$550 million range, are the Bureau of Land Management (landlord for 270 million federal acres) and the Fish and Wildlife Service. In ordinary times they could rely on Congressional allies to maintain the status quo. But with Congress flush with newcomers and the White House trumpeting the virtues of change, nothing is safe in Washington.

seem to focus on the "landscape" level, whereas a lot of scientists say that the focus should be on the species level or on some other level. What will be the mission of the Biological Survey and where its focus is likely to be?

Lovejoy. I think you will see a focus on at least two levels and they'll find ways to link them. One will be at the species level, in particular groups of organisms, to begin with, some of which are so obvious anybody could name them, others which we'll have to debate.

The other level will be at the landscape level, in trying to identify larger units which have to be looked at in terms of almost regional development plans, such as is being struggled with right now in Southern California with the coastal scrub. I think there are ways to link those.... The way I like to put it, in fact I put it to Peter Raven [Director of the Missouri Botanical Garden and Home Secretary of the National Academy of Sciences] today, I said, I hope this committee will give us some notion of what we ought to do, since we can't do everything instantaneously....

Q. In pulling appropriate science activities in Interior together for this Biological Survey don't you run some risk of losing their critical mass? Can Secretary Babbitt impose that from the top?

Lovejoy. I think this is the reason he wanted to have, as far as I know this is the first time in history, a science advisor at the level of the Secretary, so that he wouldn't be dependent entirely on scientific advice and opinion coming up through the individual agencies. There are some really tough questions there.... I think that when I really do have a chance to look into it, there's going to turn out to be some very good science done in the Interior Department. Some of these university cooperatives... I've always been impressed by those. I hear from those who know them better that I will be delighted by some of the stuff I find. But there are going to be some really tough questions as to what should be left alone, what should be left *in situ*, what should be brought out and not changed, what should be brought out and reprogrammed.

More IN PRINT: Education Technology, NASA, Etc.

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human and animal disease.”

Order from: Association of American Medical Colleges, Saving Lives Coalition, 2450 N St. NW, Washington, DC 20037-1126; tel. 202/828-0455.

Technos: Quarterly for Education and Technology (\$20 per year), journal of the Agency for Instructional Technology, a non-profit US-Canadian organization founded in 1962. The spring issue (28 pp.), commencing the second year of publication, contains articles on fiber optics, educational economics, information technologies, etc.

Order from: Technos, Subscription Department, AIT, Box A, Bloomington, Indiana 47402; tel. 812/339-2203.

Science Policy in the Netherlands (no charge), magazine published by the Dutch Ministry of Education and Science, six times a year in Dutch, four in English, with news and discussions of science-policy issues, R&D programs, research organizations, etc., in the Netherlands and in international collaborations.

Order from: Ministry of Education and Science, PO Box 25000, 2700 LZ Zoetermeer, the Netherlands.

Competitiveness Policy Council: Second Report to the President and Congress (120 pp., no charge), from one of the several similarly named Washington organizations focused on competitiveness, a reiteration of the usual pitch about closer government ties with industry, multi-sector R&D collaborations, etc. This Council, created by Congress in 1988, reserves three seats apiece for industry, labor, government, and the public, with the President and the House and Senate leadership each appointing one in each category. The current Chairman is C. Fred Bergsten, Director of the Washington-based Institute for International Economics. Despite all that appointive firepower, however, the Council is rarely heard of in Washington, except at annual report time, when it gets a hearing on Capitol Hill. The report includes a section produced by the Council's Critical Technologies Subcouncil, chaired by former NSF Director Erich Bloch, a Distinguished Fellow at the Council on Competitiveness, a private organization, not to be confused with the Competitiveness Policy Council or the defunct President's Council on Competitiveness, headed by Vice President Quayle in the last Administration.

Order from: Competitiveness Policy Council, 11 Dupont Circle NW, Suite 650, Washington, DC 20036-1207; tel. 202/387-9017; fax 202/328-6312.

RFF Research Digest (no charge), quarterly newsletter of Resources for the Future, Washington-based environmental-policy research organization, listing its publications, Congressional testimony, and weekly seminar programs, which are open to the public.

Order from: Resources for the Future, External Affairs, 1616 P St. NW, Washington, DC 20036; tel. 202/328-5025.

Manufacturing Technologies in US Industry: A MAPI Survey on the Use of Advanced Technologies and R&D in Manufacturing (ER-257; 21 pp., \$25), from the Manufacturers' Alliance for Productivity and Innovation (MAPI), an association of 500 manufacturing firms, founded in 1933. The survey, conducted by Richard R. MacNabb, a MAPI consultant, brought responses from 137 firms, with sales totaling nearly \$350 billion, according to the report. Among sentiments gleaned from the survey, with 83 percent in agreement: "As defense expenditures are reduced, a much higher proportion of total federal R&D expenditures should be shifted to develop civilian technologies."

Order from: MAPI, 1200 18th St. NW, Suite 400, Washington, DC 20036; tel. 202/331-8430; fax 202/331-7160.

Defense Industry Initiative on Business Ethics and Conduct (98 pp., no charge), sixth in a series of annual reports "to the public and the defense industry," recommended by a White House commission during the Reagan Administration to encourage defense contractors to avoid shady dealings. The report, derived from surveys of major firms, catalogs ethics programs, codes of conduct, etc.

Order from: Defense Industry Initiative, Howrey & Simon, 1299 Pennsylvania Ave. NW Wash., DC 20004; attn. Alan Yuspeh; tel. 202/383-7429; fax 202/383-6610.

Space Technology Innovation (no charge), from NASA, bimonthly magazine, formerly titled *Space Commerce Opportunities*, reflects NASA's Clinton-era passion for really getting serious about tech transfer and commercialization.

Order from: NASA, OACT, Code C, 300 E St. SW, Wash., DC 20546; tel. 202/358-0695.

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IN PRINT: National R&D Issues, Ag, Mega-Projects

The publications listed are obtainable as indicated—not from SGR.

National Issues in Science and Technology: 1993 (88 pp.; \$22, plus \$4 for shipping), from the National Academy of Sciences and the linked National Academy of Engineering and Institute of Medicine, a collection of homegrown policy ruminations and recommendations specially prepared for and donated to the Clinton Administration during the transition period. Distilled from studies conducted in recent years in the NAS complex are "white papers" on selecting senior executives for government R&D agencies, climate-change policy, federal technology policy and industrial innovation, and health-care reform. There are also summaries of 10 major reports produced over the past few years by the Academy organizations on R&D-related topics, including nuclear power, nutrition, radioactive waste, and automobile fuel economy.

Coincidentally or not, Clinton has followed one of the principal recommendations in this collection: "The President's Science Advisor," says the paper on Presidential staffing, "should be appointed early, and one of his or her major tasks should be recruitment of outstanding scientists and engineers for key positions." John Gibbons, Clinton's Science Advisor, was appointed in December, months ahead of his predecessors in recent Administrations, and he has been closely involved in R&D recruiting.

Order from: National Academy Press, 2101 Constitution Ave. NW, Washington, DC 20418; tel. 1/800-624-6242; in the Washington, DC, area: 202/334-3313.

USDA Research and Extension Services: Missions, Structures, and Budgets (GAO/RCED-93-74FS; 29 pp., no charge), from the General Accounting Office (GAO), summaries of the roles, budgets, staffing, geographic distribution, etc. of four major components of the US Department of Agriculture—Agricultural Research Service, Cooperative State Research Service, Extension Service, and Soil Conservation Service. Though invisible to the urban public and rarely noted in the general press, the four agencies add up to big numbers on the federal charts—combined spending of over \$2 billion in 1991 and over 13,000 employees. The report was requested by Senator Patrick Leahy (D-Vt.), Chairman of the Committee on Agriculture, Nutrition, and Forestry.

Also from the GAO: **Hazardous Waste: Much Work Remains to Accelerate Facility Cleanups** (GAO/RCED-93-15; 71 pp., no charge), reports paltry results from the Environmental Protection Agency's performance under the 1984 update of the Resource Conservation and Recovery Act, which requires hazardous-waste producers to clean up contaminated sites. Of 3400 sites listed in 1992, the GAO states, about 185 had begun cleanup measures and only 43 could be credited with "comprehensive" programs. "Al-

though funding for corrective action has increased in recent years," the report says, "EPA does not have current data on the overall cost of overseeing corrective action. As a result, EPA is unable to formulate a long-term budget strategy showing corrective action progress and costs."

Order from: USGAO, PO Box 6015, Galtersburg, Md. 20884-6015; tel. 202/512-6000; fax 301/258-4066.

Also available: A related GAO report on hazardous-waste cleanup, **Compendium of 18 Corrective Action Studies**.

Order from: GAO, Attn. Ms. Mary Ann Domenick, Room 1842, 441 G St. NW, Washington, DC 20548; tel. 202/512-6111.

Major Science and Technology Programs: Science Megaprojects and Science Initiatives, December 1992 (93-166 SPR; 18 pp., no charge), from the Science Policy Research Division of the Congressional Research Service (CRS, part of the Library of Congress), an inventory of "major" federal S&T projects, customarily thought of as the multi-billion-dollar extravaganzas, or mega-projects, but defined here as \$25 million and above, with even a few below that mark. The CRS compilations show that federal funding for civilian mega-projects rose by 7.6 percent in this fiscal year, while total funding for civilian R&D rose by 12.3 percent. The military megas declined slightly, mainly because of cuts in the Strategic Defense Initiative and the National Aerospace Plane. Reported separately in the "major" category are the so-called Presidential Initiatives, six programs, mostly organized on a multi-agency basis, with budgets totaling \$10 billion this year. However, the Initiatives, spanning high-performance computing, and global change, materials, and agricultural research, support many small-scale projects. Preparation of the report was coordinated by Genevieve J. Knezo.

Order from: Any House Member or Senator, usually responsive to public requests for Congressional documents. Address and switchboard number for House Members: US House of Representatives, Washington, DC 20515; 202/225-312. For Senators: US Senate, Washington, DC 20510; 202/224-3121. Specify Congressional Research Service Report No. 93-166 SPR.

Resource Directory: Where to Call When the Issue is Animals in Medical Research (40 pp., no charge), intended for editors and writers, a nationwide list of researchers and others who will speak up for the pro-use camp in the conflict over experimental use of animals. The booklet was prepared by the Division of Communications of the Association of American Medical Colleges for the Saving Lives Coalition, a group of 18 scientific and health-related organizations. The Coalition members are described as "among the hundreds nationwide that conduct biomedical research using animal models, that employ the fruits of such research, and that support its responsible, humane use in the fight against

(Continued on Page 7)

